

Before the
Federal Communications Commission
Washington, D.C. 20554

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In the Matter of)

Advanced Television Systems)
and Their Impact Upon the)
Existing Television Broadcast)
Service)

MM Docket No. 87-268

TO: The Commission

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**VENTURE TECHNOLOGIES GROUP'S COMMENTS ON THE SIXTH
NOTICE OF PROPOSED RULEMAKING**

ORIGINAL

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These comments on the Commission's Sixth Further Notice of Proposed Rule Making (FCC 96-207, released August 14, 1996) ("Notice"), are submitted on behalf of Venture Technologies Group and its associated broadcasting and cable companies and clients, including full-service television broadcasters, low power television broadcasters, noncommercial television broadcasting companies, cable television multisystem operators, and cable television programmers ("VenTech").^{1/} VenTech has forged this consensus from different industries in order to aid in the process for upgrading the public's full service and low power broadcast television service while using the spectrum most effectively.

I. INTRODUCTION.

The Commission is seeking comments on a variety of issues regarding DTV in the Notice, some of which are of a public policy nature, some of which are regarding technical standards, and some of which are regarding changes in the proposed DTV Table of Allotments. VenTech will address specific points individually. The consensus of all the signatories upon whom VenTech represents is that the DTV policies should be revisited with a change in public policy, technical standards, and the DTV Table of Allotments in order to include LPTV into the brotherhood of broadcasting in the 21st century

^{1/} For ease of reference, these comments refer to signatories as "VenTech," which represents and is a signatory of this document on behalf of Venture Technologies Group, associated companies and clients, who are television broadcasters, cable television multisystem operators, and low power television station, including W54BQ, channel 54, Providence, Rhode Island; WBTL-LP, channel 5, Toledo, Ohio; W69CL, channel 69, Hartford, Connecticut; KPHZ-LP, channel 58, Phoenix, Arizona; KNET-LP, channel 38, Los Angeles, California; WBPA-LP, channel 29, Pittsburgh, Pennsylvania; WHTV, channel 18, Jackson, Michigan; KSFV-LP, channel 24, San Fernando Valley, California; KTAZ-LP, channel 25, Tucson, Arizona; K31CK, channel 31, Tucson, Arizona; WTWB-TV, channel 19, Johnstown, Pennsylvania; K38DY, channel 38, Calabasas, California; K69HJ, channel 69, Phoenix, Arizona, W30BH, Birmingham, Alabama; KBCB, Bellingham, Washington; On-Line Public Educational Network for the 21st Century, Inc., an applicant for several noncommercial television construction permits, and CalaVision Cable, Los Angeles, California. These comments represent the consensus of the signatories but all signatories may not subscribe to each point.

II. CHANGES MUST BE MADE IN THE PUBLIC POLICY DIRECTION IN ORDER TO PRESERVE BROADCASTING TO SURVIVE INTO THE NEXT CENTURY.

The public policy implication of the Notice are overwhelming. The FCC is burdened not with just anticipating all the pressures of current lobbying and political decisionmaking, but anticipating future needs, technological imperatives and economic realities. Toward that goal, VenTech has chosen several areas that require revamping of the current public policy proposals as included in the Notice in order for broadcasting to successfully survive into the 21st century:

a. Replication of service of all broadcasters. The FCC has attempted to make replication of service a goal in the transition from NTSC to DTV. The only flaw in this is that it is designed to preserve inequities between VHF broadcasters and UHF broadcasters, while not really serving the public and reducing viewing alternatives to the viewing public.

If the FCC based the replication of service on Grade A contours and not Grade B contours, VHF stations and UHF stations would be much more similar in contours. The evolution toward DTV requires a change in acceptable viewing as we base contours not on 50% of the viewers being able to watch 50% of the time to 50% of the viewers being able to watch 90% of the time. The reality is however that in a universe that is more than 70% cabled being able to reach 50% of the viewers -- regardless of how often -- is economically and practicably irrelevant. Cable has successfully swallowed up this market and there is no need for the FCC to attempt to reach NTSC Grade B viewers through terrestrial DTV broadcasting. They will not watch. They are not even watching NTSC in this manner.

b. LPTV stations should be prioritized in DTV allotments. The FCC should provide LPTV station licensees DTV allotments prior to authorizing any DTV

allotment for any NTSC permittee or licensee that the FCC does not currently list on its proposed DTV Table of Allotments. LPTV station licensees are existing broadcasters. Their place in the consumer marketplace is established. Any new NTSC construction permittee that is not currently allocated a parallel DTV allotment should be granted one if and only if local LPTV station licensees are granted such DTV permits.

c. Spectral recovery and LPTV. If the FCC attempts to recover spectrum in channels 2-6 and 60-69 early, it will jeopardize any attempt to maximally utilize the band. If spectral efficiency is the goal, why is LPTV not considered spectrally efficient. If spectral recovery is a goal, why take it from any service that is being used, i.e., LPTV.

Spectral recovery is a goal of the FCC, but it is naive to believe that the policy of returning the NTSC channel is inflexible. It is entirely conceivable that ten years from now the political pressure will generate a new wisdom that will cause the FCC to revisit its policy to take away NTSC. It is highly conceivable that the FCC, influenced by the future leaders of NBC, ABC, CBS, Fox, WB, and UPN, will recognize the errors of taking NTSC away from the large segment of the American people, who otherwise would not be able to view television. The public would be saved their television, and the licensees would be saved their spectrum.

The FCC placed land mobile facilities on a temporary basis in the UHF band in the early 1970s. This "temporary" placement was to expire in five years, when it was expected that the development of 800 Mhz band technology would allow the migration up the band. A quarter of a century later, the temporary is set in concrete. The FCC should not make the same mistake again. Moreover, LPTV should be considered secondary and land mobile should be considered "temporary" or "tertiary."

Rather than attempt to take away the spectrum in a piecemeal process, i.e., first take away channels 60-69, then take away 2-6, then take away 51-59, the FCC should hold back and take spectrum away when it has a clearer understanding of what it can be used for.

d. Core group. The entire VHF and UHF band (channel 2-13 and 14-69) should be considered part of the core group. At paragraph 26 in the Notice, the FCC proposes use of channels 60-69 exclusively for LPTV stations. LPTV television stations should not be designated to the a graveyard, but integrated in the larger band. Moreover, compensation for relocation to DTV channels is anticipated for full-service broadcasters. Broadcasters should compensate LPTV stations for the value of their station as a business entity if the LPTV station is bumped by a DTV station. This is not incongruent with the policy of LPTV as a secondary service.

e. Kickstarting DTV. At paragraph 33 of the Notice, the FCC proposes allotting DTV assignments to holders of unoperating stations and construction permittees. If these stations remain unbuilt and unlicensed within 12 months of a final ruling on DTV, the FCC should kickstart DTV by authorizing these stations to build only in DTV and not in NTSC.

f. Jumping channels. At paragraphs 35 and 37 of the Notice, the FCC proposes to allow stations to change DTV channels at a later time to get into the core group of channels 14 through 51. Such jumping should only be allowed at that time if and only if an LPTV station is not displaced at that time. If a channel is available that does not cause displacement of an LPTV channel, it should be required to be used by the "jumping" DTV station.

g. Allowance for interference. At paragraph 40 of the Notice the FCC recognized a tacit understanding that certain interference will occur. Special allowances should be made for LPTV stations to provide greater interference to stations to preserve them in the spectrum.

h. Negotiating for interference. At paragraph 41 of the Notice, the FCC proposes to allow broadcasters to negotiate interference to each other. LPTV broadcasters, however, are not allowed to negotiate in this manner as proposed. Full service stations can recognize and negotiate to accept interference but LPTV stations have not rights with which to negotiate. Because LPTV stations actually compete with full service television broadcasters, full-service broadcasters will be tempted to seek channels that actually eliminate LPTV station. LPTV stations should be allowed to negotiate interference rights with full-service broadcasters if any negotiations are allowed at all.

i. LPTV service replication. At paragraph 43 of the Notice, the FCC restates that service replication is the goal for all broadcasters. No attempt in the Notice, however, includes service replication for LPTV. Prior to establishment of a final DTV Table of Allotments, the FCC should study to determine how much interference or change in coverage of full service DTV stations would be required to allow for a DTV phased transition of LPTV.

j. Compensation. At paragraph 47 of the Notice, the FCC proposes compensation be paid to displaced stations. Compensation should be paid to all displaced LPTV stations.

k. Common siting of DTV stations. At paragraph 48 of the Notice, the FCC proposes to allow stations to provide special incentives to co-locate DTV stations in a

market. Stations should be allowed to move their DTV transmitter site more than 3 miles in and only if they then thereby provide protection of the LPTV stations in that market. In Los Angeles it is well-known that certain stations compete in foreign-language broadcasting with the KNET-LP and therefore have a financial incentive to exterminate that LPTV station to increase their share of that market. Similarly, as was discussed at recent NAB-sponsored caucuses, they are proposing moving their transmitter sites for DTV more than 20 miles to Mt. Wilson. They should be allowed to do so if and only if they negotiate in good faith interference understandings with LPTV stations in market.

l. Allotments to LPTV. At paragraphs 51 and 72 of the Notice, the FCC proposes DTV allotments to LPTV broadcasters. During the transition, no other use of the channels should be allowed. LPTV stations should have the highest priority of "secondary" use of the spectrum -- after existing NTSC licensees and before any other use.

m. Displacement. At paragraph 67 of the Notice, the FCC proposes greater displacement allowances for LPTV stations. Not only should LPTV stations be allowed to move channels if displaced, displacement interference criteria should be liberalized. In fact, displaced LPTV stations should be able to move to the channel of their choice and the burden of proof of interference should be placed on full service stations. The assumption of the acceptability of a channel should be granted to an LPTV station. Moreover, at a certain date in the future, technical interference criteria to NTSC stations should be radically increased to expedite the development of LPTV DTV stations. placed on full service station.

n. Compensation. At paragraph 68 of the Notice, the FCC proposes compensation to LPTV stations that are displaced. New service providers, including DTV stations, should be required to compensate all displaced LPTV stations.

o. Cable carriage for LPTV. At paragraph 69 of the Notice, the FCC proposes to require cable carriage for LPTV stations. In the event that "must carry" survives, it would be appropriate to require this from all cable operators.

p. Allocation methodology. At paragraph 82 of the Notice, the methodology of allocation is discussed. The allocation methodology should be modified to allow for protection to LPTV stations. Interference criteria should be increased 30% to allow for protection of LPTV stations.

q. Changes to the NTSC Table of Assignments. Prior to the completion of the DTV Table of Allotments, the FCC should conclude all pending requests for modifications of the NTSC Table of Assignments. WTWB, an affiliated company of VenTech has had pending a request for reconsideration of denial of such an action for several months with no movement.² FCC resources should be marshaled in order that the DTV allotment process is not later hamstrung by pending proposals.

² On May 28, 1996, Venture Technologies Group, Inc., licensee of Television Station WTWB-TV, channel 19 at Johnstown, Pennsylvania, pursuant to Section 1.106 of the FCC rules, respectfully sought reconsideration of the April 25, 1996 letter ruling of the Chief of the Allocations Branch of the Policy and Rules Division of the Mass Media Bureau dismissing as unacceptable Venture Technologies Group, Inc.'s January 31, 1996 Petition for Rulemaking, which sought modification of the FCC's Table of Television Channel Allotments to: (a) delete UHF channel 19 from Johnstown, Pennsylvania, (b) add UHF channel 19 to Jeannette, Pennsylvania, and (c) modify the license of WTWB-TV to specify operations on channel 19 in

III. CHANGES IN THE TECHNICAL STANDARDS IN ORDER TO BETTER PROTECT LOW POWER TELEVISION BROADCASTERS WITH NO HARM TO NTSC TELEVISION BROADCASTERS, DTV TELEVISION BROADCASTERS, OR OTHER SPECTRUM USERS.

Preservation of current LPTV and Translator service to viewers during transition to DTV service is important. DTV transmitters will go into operation with essentially no viewers, but will, due to interference to co-channel and in some cases adjacent channel interference to LPTV signals, make those signals not viewable on existing NTSC receivers. Additionally, if the DTV signals are given full protection from NTSC LPTV stations many LPTV stations will have to discontinue operation, or change facilities to eliminate interference to DTV stations.

LPTV stations are required to strictly protect existing NTSC TV Broadcast stations. The assignment standards of FCC rules 74.705 often limit operation of LPTV stations to only a few channels in congested areas. To improve the possibility that a new channel can be found for an LPTV station displaced by DTV stations we are proposing changes to FCC rules 74.705, 74.707, and 74.709:

- a. Change FCC rule 74.705(b)(1) to permit the use of first adjacent channel from sites within 3 KM of the adjacent channel NTSC UHF station without rule waivers providing that an analysis of signal strengths shows adequate protection of the adjacent channel NTSC television station at receiver locations.
- b. Change FCC rule 74.705(b)(3) to permit the use of a channel that is 15 channels above the affected NTSC UHF station from sites within 3 KM of the NTSC station, without rule waivers, providing that an analysis of signal strengths shows adequate protection of the affected NTSC television station at receiver locations.

c. Change FCC rule 74.705(b)(3) to permit the use of a channel that is 14 channels above the affected NTSC UHF station from sites within the Grade B Coverage Area of the NTSC station, without rule waivers, providing that an analysis of signal strengths shows adequate protection of the affected NTSC television station at receiver locations.

d. Change FCC rule 74.705(b)(4) to permit the use of a channel that is 7 channels below the affected NTSC UHF station from sites outside the Grade B coverage area of the affected station. Also permit the use of a channel that is 7 channels below the affected NTSC UHF station from sites 95.7 KM from the affected NTSC station.

e. Totally delete FCC rule 74.705(b)(5).

f. Add Section 74.705(d)(7) to the FCC rules, which would state interference ratios of 0 dB when the protected (NTSC) TV broadcast station operates on a UHF channel that is seven channels above the requested channel, unless the affected TV broadcast station is 95.7KM or greater from the site of the LPTV station.

g. In all cases where interference calculations are made to NTSC TV broadcast stations, from LPTV stations, assume the use of the same receiving antenna patterns used to determine the protection levels of NTSC stations from DTV stations.

h. Where interference calculations are made to LPTV broadcast stations, from LPTV stations, assume the use of the same receiving antenna patterns used to determine the protection levels of NTSC stations from DTV stations.

i. Use Terrain limited contours for NTSC stations and take terrain into account when determining interference from LPTV stations to any other station.

j. Change FCC rule 74.709(c) to permit the site of an LPTV station to operate within the land mobile protected contour on the adjacent channel to one of the land

mobile assignments in 74.709(a). Provided that sufficient filtering is used in the LPTV transmitting system to protect the adjacent Land Mobile stations.

k. LPTV facilities will in many cases have to be significantly modified, in respect to channel, power and location to avoid interference to NTSC and DTV stations during the transition period. In many cases the LPTV station will have to be moved into co-location with NTSC and DTV stations on adjacent channels or +14 or +15 channels from affected NTSC station. Many of these stations will have to move from sites more than 32KM from the co-located site.

l. Interference from LPTV stations to DTV stations, on other than co-channel or adjacent channels, could occur only at signal strengths greater than 100 dBu. Due to limited power and the vertical directionality of transmitting antennas, signal strengths over 100 dBu are rarely produced by LPTV stations and can be sufficiently suppressed to eliminate any actual interference at television receiver locations. During the transition period these "taboo" channel relationships should not be used in allocations between LPTV and DTV stations.

m. Interference from LPTV stations on adjacent channels to DTV signals would only occur when the desired signal at the DTV receiver is 47.73 dB (Lower NTSC) or 48.71 dB (Upper NTSC) less in strength than the LPTV NTSC signal. If a minimum 43.81 dBu signal is assumed, then a 91.54 dBu NTSC signal would cause interference if the NTSC signal is not reduced by DTV receiving antenna directives. If the DTV signal is stronger, however, a stronger NTSC signal can be tolerated by the DTV receiver. A relatively small area around the LPTV transmitter will be potentially affected.

n. During the transition period, where NTSC signals duplicate DTV coverage, adjacent channel interference from LPTV to DTV signals should be reduced by additional filtering at the LPTV transmitter, and may be treated at the DTV receiver by filters or antenna changes, and but in no case should they result in the termination of NTSC LPTV operation on the adjacent channel.

o. Co-channel protection to DTV signals should be phased in over the first five years. Once DTV receivers are available to the general public, DTV signals should be protected from co-channel LPTV stations at a contour 15 dB above the minimum DTV service contour. This should be phased to full contour protection within five years or when the DTV receiver population reaches a significant level, whichever is longer.

IV. MODIFICATIONS OF DTV STANDARDS AND NTSC STANDARDS IN ORDER TO SIMPLIFY THE TRANSITION TO DTV AND IMPROVE COMPATIBILITY BETWEEN THE TWO SERVICES.

The dtv transmission system needs to be resistant to interference from NTSC transmissions on the same and other channels. The system as currently proposed is relatively resistant to such interference. Some of the creators of the DTV system developed a new modulation system which offers improved rejection of co-channel interference. This is described in a paper titled "A New NTSC Co-Channel Interference Rejection Filter for Improved ATV Coverage" (Eight Authors). This paper was published in the "Proceedings of the International Workshop on HDTV '96," and was presented at that conference on October 9, 1996. A copy of that paper is included with these comments as Exhibit A.

All areas of the world, outside of North America, which have decided on a DTV modulation system have selected variations of CODFM. No 6 MHz NTSC channel compatible system has yet been fully developed.

At the same workshop a paper was presented by M. Guillet of the Communications Research Center in Ottawa, Canada on a prototype 6 MHz CODFM system. This system demonstrated superiority to the 8-VSB system in interference rejection from NTSC signals. It was hampered suppressing adjacent channel DTV to DTV and DTV to NTSC interference due to lack of optimal filters. The system was not optimized for varying ghosts, peak to average ratio or system acquisition time. In all other performance parameters measured the system out performed the 8-VSB system. The paper is titled "Results of Laboratory and Field Tests of a CODFM Modem for ATV Transmission in 6MHz Channels" (Four Authors). A copy of that paper is included with these comments as Exhibit B.

The DTV transmission system is intended to standardize the parameters of the signal over the air. It is not intended to standardize the parameters of signals in the originating studio or to standardize the receiving display. This separation of these standards is inherent in the digital video process. The video standards based on 720 (or 704) pixels by 480 are derived from the D1 video tape standard, which is a production standard. The DTV transmission standard would be significantly simplified by the deletion of these SDTV standards. These parameters would still be available for use in production but would be converted for transmission.

The frame rates of the systems should be set at 60 frames progressive and 24 frames progressive. Progressive 60 frame 1000+ line operation in the 19 MB MPEG data

stream has been demonstrated by DemoGraFX . This system should operate as well or better at 1920 by 1080, 60 frame progressive, as it does at 2048 by 1024, 72 frame progressive. Interlaced studio material should be unconverted to progressive 60 frame in transmission. Receivers may operate 60 frame progressive or 60 field interlaced from these signals. Film material should either be transmitted as 24 frame progressive or frame rate converted to 60 frame progressive on transmission. However, 24-frame progressive material cannot be displayed directly at 24 frames per second. This programming must either have a 3 / 2 frame repetition to a 60 frame (or field) display or operate the display at 72 Hz with all frames repeated three times.

The NTSC frame rate is 59.94 Hz rather than 60 Hz. This change was made to reduce the visibility of beats between the aural carrier and the color subcarrier. A modification to NTSC color coding has been developed which preserves the beat reduction and the current color subcarrier frequency. A paper on this subject was published by the SMPTE Journal (October 1995), "A 60 Field/Sec Variation on NTSC for Simulcasting With ATV," Charles W. Rhodes, author. A copy of that paper is included with these comments as Exhibit C.

The 7.5 IRE setup of black level has outlived its usefulness it must be removed from video signals on encoding to digital. The broadcast industry should be authorized to change to no setup.

Aural power, for other than low band television stations, should be reduced to a maximum of five percent of peak visual power. This would reduce adjacent channel and 14-channel image interference. These are important considerations with increased use of the

television bands. Low band television stations may have to maintain higher aural power due to co-channel interference from outside the U.S. and aural interference from FM to channel 6.

An overall study must be done on specific offsets for NTSC co-channel interference reduction versus DTV offsets, and the desirability of altering aural offsets to eliminate the 10 KHz beat which is audible on modern receivers, even when offset co-channel interference is tolerable visually. A change to a true 60 Hz field rate will also alter the specific precise offset frequencies.

Coverage replication for NTSC stations is a generally desirable concept. However the potential for increased interference from extremely high power DTV transmitters should limit increased power to about three times nominal (equivalent DTV coverage to 5000 KW at antenna height should be considered nominal). Current NTSC coverage should be calculated for each band without adjusting each station for the dipole factor of its channel, not to exceed the authorized NTSC Grade B. NTSC coverage is typically graded on scales with 6 dB steps; a +/- 2.3 dB change due to dipole factor only slightly degrades or enhances the picture. In DTV, however, a small change in signal level can place the signal below threshold. Many tv receiving antennas show an increase in gain of over 2 dB on high channels versus low UHF channels (about 80% in the 1980 FCC Report A-2475).

The FCC should compensate for about half of the dipole factor with receive antennas and half with increased power (and increased service field strengths). Authorized powers and protected contours should each increase by about 0.05 dB per channel from channel 14 to 69. Power of DTV stations should be specified in 0.02 dB increments.

LPTV and TV Translator stations should be authorized to convert to DTV operation on their existing channel at any time desired by the licensee.

V. CHANGES IN THE PROPOSED DTV TABLE OF ALLOTMENTS.

VenTech proposes the following changes in the proposed DTV Table of Allotments:

a. Southern California. The FCC's proposed DTV assignment for KDOC, channel 56 at Anaheim, should be modified from channel 38 to channel 17 or 65. The DTV assignment for KPBS, channel 15 at San Diego, should be changed from channel 17 to channel 38. This will allow for greater spectral efficiency, prevent interference to and from the new NTSC channel 38 in Santa Barbara, California, and allow for greater international coordination, and allow for the preservation of four LPTV stations operating in the Southern California area on UHF channel 38.

On November 14, 1996, VenTech proposed changes at the NAB-sponsored Region 1 meeting of the Broadcast Caucus. Prior to that meeting, VenTech received the endorsement of its plans for changes in the DTV Table of Allotments from Coast Television, which has been granted the Initial Decision for the new NTSC station at Santa Barbara, California on channel 38.

In order to preserve the operation of the maximum number of stations and reduce interference to the future operation of the NTSC TV Broadcast station on channel 38 at Santa Barbara, the following proposed alternatives were offered as a modification of the NAB/MSTV sponsored Table of Allotments. In the FCC's Notice, NTSC coverage on channel 38 at Santa Barbara was shown with a 4% percent loss of coverage, both in area and population, due to a DTV assignment for KDOC-TV, Channel 56, Anaheim from Sunset Ridge.

A larger loss of coverage by Channel 38 Santa Barbara would be caused by the operation of KTTV, Channel 11, Los Angeles from Mt. Wilson as is proposed in the table

under consideration at that meeting. The following two alternatives were proposed and formally submitted for consideration to the NAB/MSTV at that time:

1. Alternative 1. Change DTV Assignment for KTTV, Channel 11, Los Angeles from Channel 38 to Channel 47. Change DTV Assignment for KHSC, Channel 46, Ontario from Channel 47 to Channel 45.

2. Alternative 2. Change DTV Assignment for KTTV, Channel 11, Los Angeles from Channel 38 to Channel 26. Change DTV Assignment for KZKI, Channel 30, San Bernardino from Channel 26 to Channel 61. Change DTV Assignment for KRPA, Channel 44, Rancho Palos Verdes from Channel 61 to Channel 64 or Channel 23.

Each of these alternatives would eliminate overlap between the DTV coverage area of KTTV and the co-channel Grade B coverage area of any other TV Broadcast station. In Alternative 2, interference to the KTTV DTV signal on Channel 26 would not be created by the KVCR-TV DTV signal on Channel 25 due to the relatively low power, high antenna height, and vertical pattern of the antenna on Channel 25 versus the relative strength and direction of the KTTV Channel 26 signal.

b Western Pennsylvania. The DTV power levels proposed for WTWB-TV, channel 19 at Johnstown, Pennsylvania, are based on the former power levels of the station. The station is currently operating at more than 3.02 million watts effective radiated power.

VI. THE CURRENT DTV PLAN WILL HAVE TREMENDOUS NEGATIVE IMPACT ON THE DISENFRANCHISED, THE FORGOTTEN OF THE NATIONAL INFORMATION INFRASTRUCTURE WHO HOPE FOR TELEPHONES AND TELEVISIONS, NOT THE INTERNET AND DIGITAL SIGNALS.

VenTech has developed a consortium of interests that it has forged together from different industries. The example, however, of the comments of Charles Lohr, the General Manager of KNET-LP in Los Angeles, California -- an associated company of

VenTech, specifically illustrates the "real world" effect of the ominous nature of the current direction of DTV as it could effect the general public.

It is Mr. Lohr's belief that under a different engineering proposal that maybe one or two LPTV television stations could exist in major markets. Mr. Lohr has personally built LPTV stations to date in the following markets: Los Angeles, California, channel 38; Atlanta, Georgia, channel 20; St. Louis, Missouri, channel 64; Minneapolis, Minnesota, channel 7; Portland, Oregon, channel 43; Houston, Texas, channel 55; Kansas City, Missouri, channel 35; Phoenix, Arizona, channel 58; Detroit, Michigan, channel 36; and has supervised the construction of many more major market stations.

According to Commissioner Hundt, it is predicted that 75% of television households will soon be receiving their signals via set-top converters or direct satellite. Commissioner Hundt's unasked question then becomes "Who will serve the 25% of uncabled households who will never abandon their NTSC receivers?"

Our country has a larger mandate to the people than to regulate what kind of television that they should be using. We have never eliminated AM radio even though a constantly shrinking amount of listeners prefer AM over FM radio. We have never eliminated 2 GHz microwaves, even though they use an enormous amount of valuable spectrum. We have not eliminated citizens band radio even though cellular technology has bypassed the need for this technology.

Who is behind this Grand Alliance proposal to eliminate NTSC television and Low Power Television Stations in particular? Originally this proposal was started by RCA and Sarnoff Labs, Zenith, Phillips, and AT&T. But instead of a American patent holder or manufacturing segment being graced with the benefits of your standard decision, the clear

winners will be Thomson CSF of France, Zenith of South Korea, Phillips of The Netherlands, and AT&T (minus the Baby Bells it once owned). There will be no large increase in American jobs but just the opposite, most medium and small broadcasters (including 1,800 LPTV broadcasters) will be seriously overburdened with expensive new hardware, that is clearly not state of the art in digital quality. The only jobs created will not be in the Silicon Valley and other R&D technology centers, but rather overseas.

The real losers will be the major market television viewer who loses his or her niche LPTV or small TV signal in NTSC. The real losers will be the American worker, who will lose potential manufacturing jobs that will invariably instead be created overseas. The real losers will be the loss of American pride in leadership while the rest of the world works on flexible and revolutionary alternatives.

In Los Angeles, California, it has been left to KNET-LP, a low power television station, to deliver the El Salvadoran News to the 1 million Salvadorans living in Los Angeles. In San Francisco, it is a low power station that delivers the only Korean News. Who will deliver the small niche programs for free to millions of viewers without LPTV. How can any of us explain to them what happened to their channel and why the federal government decided to take it away? How does one explain the loss of locally produced children's programs or most especially how does one explain to the 20 other locally produced minority-oriented programs on KNET-LP that the federal government has decided to close down their small business for the good of the national debt? LPTV stations serve the great unwashed. They do not have cable, they do not have new TV sets, they do not have the financial capability to pay fees. They will be left behind in the telecommunications revolution in this country if LPTV is not protected by the rush toward DTV.

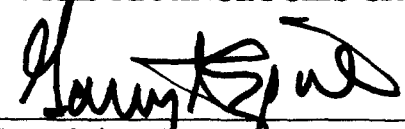
LPTV was originally envisioned to provide citizens in small towns and big cities an opportunity for local ownership and involvement. That is exactly what the FCC proposes to eliminate by this rulemaking. It should be corrected.

VII. CONCLUSION.

For the reasons specified herein, the establishment of the DTV service could be a great telecommunications service. Venture Technologies Group, on behalf of itself and its associated companies and clients, respectfully requests that the Federal Communications Commission incorporate the comments contained herein in its Rulemaking regarding Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service. In the last 20 years, LPTV broadcasters, have also been a great new telecommunications service. The two services can grow together.

Respectfully submitted,

VENTURE TECHNOLOGIES GROUP

By 
Garry Spire, Esq.
General Counsel

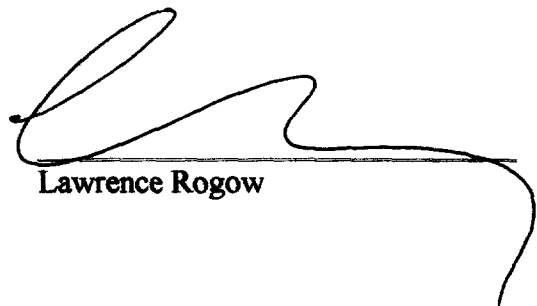
6611 Santa Monica Boulevard
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November 22, 1996

Certificate of Service

I, Lawrence Rogow, hereby certify that on this 21st day of November 1996, I have caused an original and nine copies of the foregoing Venture Technologies Group's Comments on the Sixth Notice of Proposed Rulemaking to be mailed via Federal Express to the offices of the following:

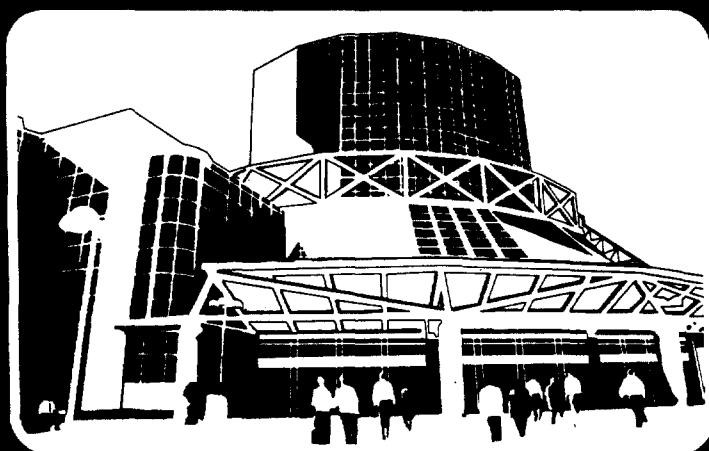
Mr. William Caton
Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554



Lawrence Rogow

Exhibit A

INTERNATIONAL WORKSHOP ON HDTV '96



OCTOBER 8-9, 1996

LOS ANGELES CONVENTION CENTER
LOS ANGELES, USA



The European Association
for Signal Processing

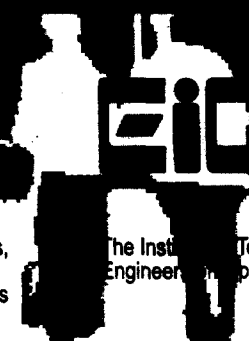
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A New NTSC Co-Channel Interference Rejection Filter with Coded 6-VSB Modulation for Improved ATV Coverage

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ABSTRACT

The ATSC ATV standard and its service area predictions assume the use of a comb filter at the receiver. However, such a filter is not required by the ATV standard. There are also unresolved questions about the efficacy of the comb filter. We describe a new system, including an NTSC co-channel interference rejection filter with coded 6-VSB modulation, of comparable complexity, which offers improved ATV service area. Coverage analysis results demonstrate that the system provides much better co-channel performance today with a comparable carrier-to-noise (C/N) threshold and better threshold performance when NTSC transmission ceases in the future. The new system obviates concerns about the reliability of the comb filter under conditions of noise, interference, and multipath.

1. INTRODUCTION

The United States of America Federal Communications Commission (FCC), through its Advisory Committee on Advanced Television Service (ACATS) and the cable television organization Cable Television Laboratories (CableLabs), evaluated digital television delivery systems in order to choose a new television standard which soon will replace NTSC. The FCC has indicated that the terrestrial transmission scheme will initially take the form of a so-called "simulcast" approach. The new ATV signals will have to fit into television channels which are currently unused in a given geographic area (so-called "taboo" channels) and initially co-exist with conventional analog television signals (NTSC) without causing unacceptable interference to NTSC. Also, the ATV receiver must be designed to be robust in the presence of NTSC co-channel interference.

In 1995 ACATS completed the testing of the "Grand Alliance" (GA) ATV system, a system which was developed cooperatively by the organizations involved in the first round of individual digital proposals tested by ACATS in 1991 and 1992. The GA members comprise Lucent, the David Sarnoff Research Center, General Instrument (GI), the Massachusetts Institute of Technology (MIT), Philips Electronics North America Corporation, Thomson Consumer Electronics, and Zenith Electronics. The David Sarnoff Research Center, Philips Electronics North America Corporation, and Thomson Consumer Electronics are former members of the Advanced Television Research Consortium (ATRC). GI and MIT are former members of the American Television Alliance (ATVA). A terrestrial transmission approach developed by GA member Zenith Electronics Corporation was selected by the GA and endorsed by ACATS. The GA transmission system, later documented [1] for standardization by the Advanced Television Systems Committee (ATSC) utilizes an 8-level digital vestigial sideband (8-VSB) modulation approach.

The ATSC ATV standard and its service area predictions assume the use of a comb filter to mitigate the effects of NTSC co-channel interference at the ATV receiver [4]. However, such a filter is not required by the standard and receiver manufacturers may choose to implement it, implement something else, or implement no special co-channel rejection scheme at all. Thus ATV service area predictions based on the use of the comb filter are questionable.

To select the Zenith 8-VSB scheme as their transmission system, the GA conducted a comparison among three transmission proposals submitted by the ATRC, ATVA, and Zenith. The GA planned to use NTSC-co-channel-interference-plus-noise ("co-channel-plus-noise") performance projections to help select their transmission system. Both the ATVA and ATRC systems projected better co-channel-plus-noise performance than the Zenith system over an important part of the expected co-channel-plus-noise operating range. However, because the Maximum Service Television (MSTV) coverage analysis model could not be used to compare systems on the basis of co-channel-plus-noise performance at the time of GA system selection, MSTV had to use co-channel-only performance projections to help the GA select their transmission system. The Zenith system was favored on this basis. The GA (formerly Zenith) system is better than the earlier ATRC and ATVA systems in most respects [6], but co-channel-plus-noise performance remains clearly suboptimal, due to the 3 dB loss in system noise threshold incurred when the comb filter is switched in, and its unreliable operation [5].

In early 1994, Philips proposed an improved method for combating co-channel NTSC interference for digital ATV reception. This proposal was based on a new NTSC rejection filter at the ATV receiver. A powerful new two-dimensional (2-D) trellis code compatible with the NTSC rejection filter was proposed by Lucent at about the same time. We call this combination (Philips improved co-channel filter plus Lucent 2-D trellis code) "the new system" below. The GA Transmission Specialist Group submitted simulated co-channel-plus-noise results for the new system to MSTV for coverage analysis. The results reported by MSTV for the new system showed a significant reduction in ATV population lost to NTSC interference. Based on these favorable results, the GA decided to proceed with testing of the new system in hardware.

Hardware was constructed to compare the performance of new system with that of the GA system. The GA then undertook testing to compare the co-channel performance of the new system and the GA system hardware. The potential gains in service reported by MSTV using simulated co-channel-plus-noise results for the new system were confirmed by coverage analysis using co-channel-plus-noise results measured in the laboratory on hardware. The results of coverage analysis showed that the reductions in ATV population lost to NTSC interference ranged from 38% to 42%, depending on the content of the interfering NTSC video sequence tested.

A cost computation for implementing the new system in an ATV receiver showed a difference of +60 cents for logic and memory in the first year (1996), decreasing to +15 cents in the year 2001, with respect to a generic ATV receiver without a co-channel filter. This cost difference appeared not to be very significant.

Despite these favorable results, the GA decided to terminate further development of the new system. A major concern was the requirement to complete hardware development and testing within a time period acceptable to ACATS.